UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,124	09/26/2000	Wai-Chung Chan	PD-200126	5665

7590   10/06/2004

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EXAMINER
DUONG, THOMAS

ART UNIT	PAPER NUMBER
2145	

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/670,124	CHAN ET AL.
	Examiner	Art Unit	
	Thomas Duong	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*29 June 2004*</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *1*.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This office action is in response to the amendment filed on June 29, 2004. The

amendment filed on June 29, 2004 has been entered and made of record. *Claims 1-39*

are presented for further consideration and examination.

Response to Argument

2.   The Applicants' arguments and amendments filed on June 29, 2004 have been fully

considered, but they are not persuasive.

3.   With regard to *claims 1, 11, 21, 29 and 39*, the Applicants point out that:

- *Given the above description of the operation of the Zheng et al. system, it is clear*

  that the buffer 24 does not and cannot store "values that correspond to the

  relative positions of the M queues." That is, the Zheng et al. system is not

  concerned with the relative positions of the queues, which has no technical

  significance to its operation. This is evident by the queueing structure of FIG. 8,

  whereby the positions of the Connections 1 through n are not relevant to the

  timed-round-robin algorithm (col. 8: 29-61).

- *In fact, the cited FIG. 16 shows that the shared buffer memory (which follows a*

  linked-list queuing structure) stores tags, which point to the location of the next

  cell in a particular queue (col. 14: 25-36) - this cannot be construed as values

  that correspond to the relative positions of the M queues." FIG. 16 further

  illustrates a Connection Lookup Table that stores addresses of first and last cells

of queues – again, these values are not the claimed values corresponding to the

relative positions of the M queues.

- *The Office Action (page 3) offers many citations within Zheng et al., presumably*

  to indicate disclosure of the claim features: Abstract, col. 1: 8-12, col. 3: 26 - col.

  4: 4; col. 4; 11-17; col. 5: 18-20, 46-66, col. 14: 25-36, FIG. 1, and FIG. 16.

  These many citations fail to disclose "retrieving a search order table having a

  plurality of table entries corresponding to M queues that selectively store the

  packets, the table entries storing values that correspond to relative positions of

  the M queues and that are selected based upon a transmission constraint of the

  communication system."

However, the Examiner finds that the Applicants' arguments are not persuasive and

maintains that the Zheng reference does disclose,

- *retrieving a search order table having a plurality of table entries corresponding to*

  M queues that selectively store the packets, the table entries storing values that

  correspond to relative positions of the M queues and that are selected based

  upon a transmission constraint of the communication system; and (Zheng, col.1,

  lines 8-12; col.3, line 26 – col.4, line 4; col.4, lines 11-17; col.5, lines 18-20, lines

  46-66; col.14, lines 25-36; fig.1; fig.16; Zheng discloses a *"Connection Lookup*

  Table (CLT)" (i.e. *order table*) having a plurality of table entries corresponding to

  n (i.e. *M*) queues since there is a *"cell queue for each connection"* (col.14, lines

  26-27). Zheng also discloses *"the addresses of the fist and last cells of queues*

  are stored in the CLT" (col.14, lines 31-33) (i.e. storing values that correspond to

  relative positions of the M queues). Finally, Zheng discloses the *"Control Unit,*

which manages the cell queues and schedules cells to be transmitted" (col.14,

lines 33-35))

- *scheduling transmission of the packets stored in the M queues based upon the*

  search order table. (Zheng, col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.4,

  lines 11-17; col.5, lines 18-20, lines 46-66; col.14, lines 25-36; fig.1; fig.16; Zheng

  discloses a *"Connection Lookup Table (CLT)"* (i.e. *order table*) having a plurality

  of table entries corresponding to *n* (i.e. *M*) queues since there is a *"cell queue for*

  each connection" (col.14, lines 26-27). Zheng also discloses *"the addresses of*

  the fist and last cells of queues are stored in the CLT" (col.14, lines 31-33) (i.e.

  storing values that correspond to relative positions of the M queues). Finally,

  Zheng discloses the *"Control Unit, which manages the cell queues and*

  schedules cells to be transmitted" (col.14, lines 33-35))

In summary, the Examiner maintains that Zheng discloses a *"Connection Lookup*

Table (CLT)" (i.e. *order table*) having a plurality of table entries corresponding to *n*

(i.e. *M*) queues since there is a *"cell queue for each connection"* (col.14, lines 26-27).

Zheng also discloses *"the addresses of the fist and last cells of queues are stored in*

the CLT" (col.14, lines 31-33) (i.e. storing values that correspond to relative positions

of the M queues). Finally, Zheng discloses the *"Control Unit, which manages the cell*

queues and schedules cells to be transmitted" (col.14, lines 33-35). Therefore, the

Applicants still failed to clearly disclose the novelty of the invention and identify

specific limitation, which would define patentable distinction over prior art.

4.   With regard to *claim 2*, the Applicants point out that:

- *Upon close examination of these cited passages, Applicants are left to guess at how the claim features are met, as there is simply no use of the term "satellite" in any of these passages, or anywhere else in the reference.*

However, the Examiner finds that the Applicants' arguments are not persuasive and maintains that the Zheng reference does anticipate a "satellite" communication system through the term *"digital communication system"* (col.1, lines 8-9). Furthermore, throughout the Zheng reference, one of ordinary skill in the art can clearly observe terms (i.e. transmitter, outgoing link, incoming link, downstream, upstream, etc.) that can be construed as referring to a satellite communication environment.

In summary, the Examiner maintains that Zheng reference does anticipate a "satellite" communication system through the term *"digital communication system"* (col.1, lines 8-9). Furthermore, throughout the Zheng reference, one of ordinary skill in the art can clearly observe terms (i.e. transmitter, outgoing link, incoming link, downstream, upstream, etc.) that can be construed as referring to a satellite communication environment.. Therefore, the Applicants still failed to clearly disclose the novelty of the invention and identify specific limitation, which would define patentable distinction over prior art.

5.   With regard to *claims 2-10, 12-20, 22-28 and 30-38*, they are rejected at least by virtual of their dependency on the independent claims and by other reasons set forth in the previous office action (Paper No.6). Accordingly, rejections for *claims 2-10, 12-20, 22-28 and 30-38* are presented as below:

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in
public use or on sale in this country, more than one year prior to the date of application for patent in
the United States.

7.   *Claims 1-39* are rejected under 35 U.S.C. 102(b) as being anticipated by Zheng et al.

(US005392280A).

8.   With regard to *claims 1, 11, 21 and 29,* Zheng reference discloses,

- *retrieving a search order table having a plurality of table entries corresponding to*

  M queues that selectively store the packets, the table entries storing values that

  correspond to relative positions of the M queues and that are selected based

  upon a transmission constraint of the communication system; and (Zheng, col.1,

  lines 8-12; col.3, line 26 – col.4, line 4; col.4, lines 11-17; col.5, lines 18-20, lines

  46-66; col.14, lines 25-36; fig.1; fig.16; Zheng discloses a *"Connection Lookup*

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  n (i.e. *M*) queues since there is a *"cell queue for each connection"* (col.14, lines

  26-27). Zheng also discloses *"the addresses of the fist and last cells of queues*

  are stored in the CLT" (col.14, lines 31-33) (i.e. storing values that correspond to

  relative positions of the M queues). Finally, Zheng discloses the *"Control Unit,*

  which manages the cell queues and schedules cells to be transmitted" (col.14,

  lines 33-35))

- *scheduling transmission of the packets stored in the M queues based upon the*

  search order table. (Zheng, col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.4,

  lines 11-17; col.5, lines 18-20, lines 46-66; col.14, lines 25-36; fig.1; fig.16; Zheng

discloses a *"Connection Lookup Table (CLT)"* (i.e. *order table*) having a plurality

of table entries corresponding to *n* (i.e. *M*) queues since there is a *"cell queue for*

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the fist and last cells of queues are stored in the CLT" (col.14, lines 31-33) (i.e.

storing values that correspond to relative positions of the M queues). Finally,

Zheng discloses the *"Control Unit, which manages the cell queues and*

schedules cells to be transmitted" (col.14, lines 33-35))

9.   With regard to *claims 2, 12 and 30,* Zheng reference discloses,

*   *wherein the transmission constraint in the retrieving step specifies that the*

    packets are to be transmitted to a plurality of destination nodes that are

    non-interfering, the communication system being a satellite communication

    system. (Zheng, col.5, lines 18-20; col.15, lines 50-68; fig.18)

10.   With regard to *claims 3, 13, 22 and 31,* Zheng reference discloses,

*   *transmitting the packets via N number of transmitters, wherein N is less than or*

    equal to M. (Zheng, abstract; col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.4,

    lines 11-17; col.5, lines 18-20, lines 46-66; col.14, lines 25-36; fig.1; fig.8; fig.16)

11.   With regard to *claims 4-6, 14-16, 23-24 and 32-34,* Zheng reference discloses,

*   *(a) checking whether a particular one of the M queues has a packet stored*

    therein and satisfies the transmission constraint; (Zheng, abstract; col.1, lines 8-

    12; col.3, line 26 – col.4, line 4; col.5, lines 46-66; col.6, lines 26-62; fig.1; fig.16)

*   *(b) selectively including the particular queue in a transmission list based upon the*

    checking step; and (Zheng, abstract; col.1, lines 8-12; col.3, line 26 – col.4, line

    4; col.5, lines 46-66; col.6, lines 26-62; fig.1; fig.16)

- *(c) iteratively performing steps (a) and (b) until at least one of each of the M*

  queues is checked and N number of the queues are included in the transmission

  list. (Zheng, abstract; col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.5, lines 46-

  66; col.6, lines 26-62; fig.1; fig.16)

12.   With regard to *claims 7-8, 17-18, 25-26 and 35-36*, Zheng reference discloses the

invention substantially as claimed,

    See *claims 5, 15, 23 and 33* rejection as detailed above.

    Furthermore, Zheng reference discloses,

- *wherein the search order table in the retrieving step has L consecutive table*

  entries associated with L queues that satisfy another transmission constraint.

  (Zheng, abstract; col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.5, lines 46-66;

  col.6, lines 26-62; fig.1; fig.16)

- *wherein the transmission constraint in the retrieving step specifies that the*

  packets are to be transmitted to a plurality of destination nodes that are

  non-interfering, and the other transmission constraint specifies that only one of

  the destination nodes selectively requires high-powered transmission. (Zheng,

  abstract; col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.4, lines 11-17; col.5,

  lines 18-20, lines 46-66; col.14, lines 25-36; fig.1; fig.16)

13.   With regard to *claims 9-10, 19-20, 27-28 and 37-38*, Zheng reference discloses,

- *inputting repetitive table entry values in the search order table based upon*

  relative traffic load associated with a plurality of destination nodes. (Zheng,

  abstract; col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.4, lines 11-17; col.5,

  lines 18-20, lines 46-66; col.14, lines 25-36; fig.1; fig.16)

- *generating a plurality of search order tables based upon a plurality of power constraints associated with the communication system; storing the plurality of search order tables: and selecting a particular one of the plurality of search order tables.* (Zheng, abstract; col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.4, lines 11-17; col.5, lines 18-20, lines 46-66; col.14, lines 25-36; fig.1; fig.16)

14.   With regard to <u>claim 39</u>, Zheng reference discloses,

- *scheduling transmission of the packets stored in a plurality of queues based upon a search order table, wherein the search order table has a plurality of table entries corresponding to the queues, the table entries storing values that correspond to relative positions of the queues; and* (Zheng, col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.4, lines 11-17; col.5, lines 18-20, lines 46-66; col.14, lines 25-36; fig.1; fig.16; Zheng discloses a *"Connection Lookup Table (CLT)"* (i.e. *order table*) having a plurality of table entries corresponding to *n* (i.e. *M*) queues since there is a *"cell queue for each connection"* (col.14, lines 26-27). Zheng also discloses *"the addresses of the fist and last cells of queues are stored in the CLT"* (col.14, lines 31-33) (i.e. storing values that correspond to relative positions of the M queues). Finally, Zheng discloses the *"Control Unit, which manages the cell queues and schedules cells to be transmitted"* (col.14, lines 33-35))

- *transmitting the packets to the nodes over one or more satellite links, wherein the stored values in the table are determined according to a transmission constraint relating to the nodes.* (Zheng, col.1, lines 8-12; col.3, line 26 – col.4, line 4; col.4, lines 11-17; col.5, lines 18-20, lines 46-66; col.14, lines 25-36; fig.1; fig.16; Zheng discloses a *"Connection Lookup Table (CLT)"* (i.e. *order table*) having a plurality

of table entries corresponding to *n* (i.e. *M*) queues since there is a *"cell queue for each connection"* (col.14, lines 26-27). Zheng also discloses *"the addresses of the fist and last cells of queues are stored in the CLT"* (col.14, lines 31-33) (i.e. storing values that correspond to relative positions of the M queues). Finally, Zheng discloses the *"Control Unit, which manages the cell queues and schedules cells to be transmitted"* (col.14, lines 33-35))
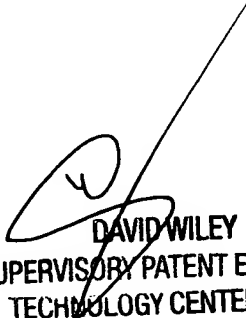
Conclusion

15.   The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure:

- Gemar et al. (US006483839B1)
- Ofek (US006377579B1)

16.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Duong whose telephone number is 703/305-1886 or 571/272-3911 (after 11/01/2004). The examiner can normally be reached on M-F 7:30AM - 4:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on 703/308-5221 or 571/272-3923 (after 11/01/2004). The fax phone numbers for the organization where this application or proceeding is assigned are 703/872-9306 for regular communications and 703/872-9306 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703/305-3900 or 571/272-2100 (after 11/01/2004).

Thomas Duong (AU2143)

September 30, 2004

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